

Science Advisory Council

Meeting Summary – Fifth Meeting
March 30, 2009
100 Cambridge St, Boston

Science Advisory Council members present for the meeting:

Priscilla Brooks, Conservation Law Foundation
Todd Callaghan, MA Office of Coastal Zone Management
Jack Looney, Environmental, Earth and Ocean Sciences, UMass Boston
Kathryn Ford, Massachusetts Division of Marine Fisheries
Scott Krauss, New England Aquarium
David Terkla, UMass Boston
Bill Schwab, US Geological Survey, Woods Hole

Not Present:

Frank Muller-Karger, School of Marine Science and Technology, UMass
Dartmouth
Carlton Hunt, Battelle

Meeting Summary

John Weber opened the meeting at 10:00 AM by thanking the Council members present for their participation. He introduced the purpose of the meeting, which was to present to the Council the methodology used in developing the Ecological Valuation Index (EVI).

In order to put the concept in perspective, John Weber briefly described how the EVI fits into the ocean management process and what role it will play in the identification and protection of “*special, sensitive, unique estuarine and marine life and habitat*” (SSU areas). He explained that the EVI is one part of the screening processes that warrant consideration as SSUs. Other potential screens for the identification of SSU areas include listed species and habitats, results from compatibility analysis and cumulative assessment, existing state-defined areas such as cod conservation zone, etc. John emphasized that a high EVI does not automatically define an area as an SSU. Identification of SSU is ultimately dependent on a number of factors.

Discussion

A number of issues were discussed, as summarized below:

(1) Socioeconomics:

The initial comments focused on the role of socioeconomics in the EVI. Some members of the Council felt that socioeconomic issues need to be considered in the development of the ocean management plan, especially behavioral changes that may be induced as a result of management decisions regarding use and SSU areas. John explained that socioeconomics and use issues were being considered as part of the compatibility analysis. In addition he explained that the purpose

of the EVI was to look at the ecological significance of a species and/or habitat. Socioeconomics will be included in the ocean management plan as a separate factor aside from the development of the EVI.

(2) Vulnerability

Question: Why was vulnerability excluded? *Answer: Vulnerability has a “use” connotation—vulnerable to what?—and since it was decided that the EVI will consider only ecological factors, vulnerability will be considered as a separate issue, pending other studies and information including the compatibility analysis.*

(3) Rare

In discussing the criteria, the Council felt that the criterion “rare” is not complete. It was suggested to incorporate “population trend” which will be informative for proportional importance and vulnerability. A species with a declining population trend would get a higher score, so the ecological value of a declining population would increase. The Council expressed the need for “rare” to be defined properly to clarify whether it pertains to area and/or population, or replace it by “limited distribution” or a term with a similar connotation.

(4) Weighting

Comment: If global proportional importance and regional proportional importance are linked and not independent, the score will be heavily weighted because of the results for those two criteria.

(5) Tiers

The Council asked about the significance of “tiers” of data for such species as whales and terns. The Council felt that the “tiers” may not be describing data priorities as intended. The Council suggested dropping the tiers and include the “tier 1” areas only.

(6) Biodiversity and species richness

Question: How were areas of high species richness included? *Answer: (1) Abiotic data were used partly as proxy for high biodiversity; (2) DMF considered including species richness data they have from the trawl survey but the great number of drawbacks in the sampling and data did not really represent species richness.*

It was suggested by the Council that data density (or the number of data layers in a grid cell) could lead to a species richness value that may be informative to the process, though it was not clear how and where appropriate.

(7) Other species

The Council asked about decisions made to include and exclude certain species: (a) *Herring?* *Answer: It was felt that river herring were inshore of the planning boundary.* (b) *Cusk?* *Answer: Still under investigation, together with sand tiger shark.* (c) *Harbor porpoise?* *Answer: This species is more widely distributed and therefore it is difficult to identify a priority or important area for those species.*

(8) Abiotic data layers and interpolation

The Council discussed at length the selection of abiotic layers, their data source and analyses. The Council felt that the shoals dataset as defined would lead to statistical issues with the EVI and should only be included if there is an ecological justification, otherwise they create a bias.

The Council also discussed methods of interpolation of biotic data with abiotic data. The Council felt that multiplying the sum of the biotic EVI with the total number of abiotic layers in a cell would not be appropriate because correlations between abiotic data and actual use by species as habitat are not known (for the most part). Consequently, the Council suggested treating biotic and abiotic layers separately, and then examining the possibility of correlating a biological effect or activity with an abiotic feature. The Council stressed that further study of any such correlation would be required, since good data would be necessary.

The Council also suggested including only abiotic data layers with a higher level of confidence and decreased risk of auto-correlation or double-counting.

Finally, members of the Council recommended including absolute temperature which is a key driver of ecosystem processes. Sea surface temperature could be used as a proxy for shallow waters, since data for the planning area is limited.

Concluding note

John thanked the Council for their comments regarding the ecological valuation index. He informed the Council that the next meeting will be scheduled in about two weeks and that maps describing the data and EVI will be presented during that meeting.